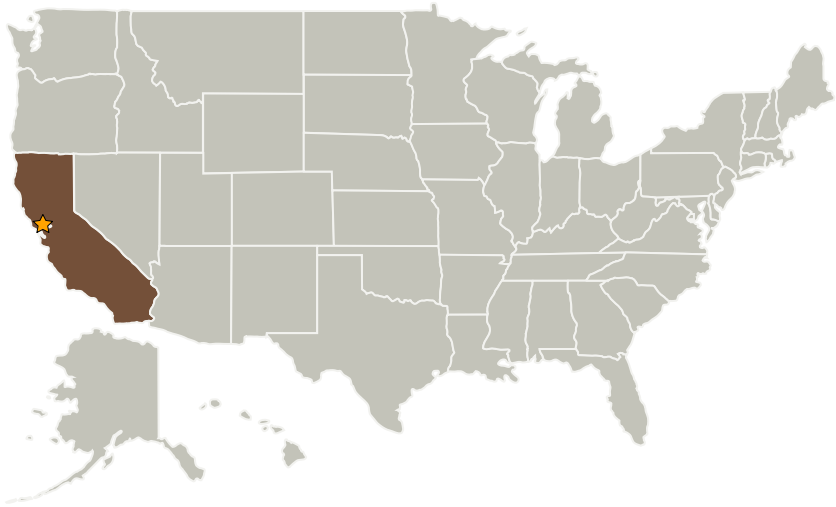
Easy-to-Use UAV Ground Station Software for Low-Altitude Civil Operations, Phase I

Completed Technology Project (2005 - 2005)

Project Introduction

We propose to design and develop easy-to-use Ground Control Station (GCS) software for low-altitude civil Unmanned Aerial Vehicle (UAV) operations. The GCS software will allow a UAV user to 1) specify the mission in the user's language, rather than the traditional jargon of mission and flight plan-ning, and 2) execute the mission without relying on additional personnel who have specialized piloting skills. The user specifies the mission through a combination of natural-language instructions and graphi-cal interfaces, and the GCS software translates the user instructions into a mission plan that is executed autonomously. This innovation will enable a paradigm shift in UAV operations by freeing end users from their dependency on expert operators to fulfill the mission. The proposed Phase I work focuses on requirements analysis and the design and demonstration of a prototype GCS User Interface. We will also develop a plan for a Phase II effort to further develop and demonstrate the GCS software with an existing UAV platform for a specific application. This research directly addresses the NASA Earth Science Enterprise requirement for Automation and Planning technologies that "allow either spacecraft or ground systems to robustly perform complex tasks given high-level goals with minimal human direction."

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
Sensis Seagull Technology Center	Supporting Organization	Industry	Campbell, California

Primary U.S. Work Locations
California

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Gregory A Carr

Technology Areas

Primary:

- TX10 Autonomous Systems
  - TX10.2 Reasoning and Acting
    - TX10.2.4 Execution and Control